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Securing Foreign Markets: Exports, Relational Specificity and New Investment Locations

Giorgia Giovannetti, Gianluca Santoni & Giulio Vannelli

Highlights

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- Motivated by the observation that most firms entering a new foreign country do not establish a production unit there or decrease their exports, we develop a simple theoretical framework to guide our analysis and provide empirical evidence to support this "market securing" mechanism.
- Our results confirm that companies tend to locate new investments in countries that account for a larger share of their past exports: allowing for a better monitoring of the foreign market, the investment prevents the disruption of the relationship, whose impact on profits would be more detrimental in the case of more important foreign partners.

Abstract

In this article we examine how the need to secure profit streams from exports has affected the location choice of new foreign investments by French manufacturing firms. Motivated by the observation that most firms entering a new foreign country do not establish a production unit there or decrease their exports, we develop a simple theoretical framework to guide our analysis and provide empirical evidence to support this "market securing" mechanism. Our results confirm that companies tend to locate new investments in countries that account for a larger share of their past exports; allowing for better monitoring of the foreign market, the investment prevents the disruption of the relationship, whose impact on profits would be more detrimental in the case of more important foreign partners. A 10 percent increase in bilateral exports increases the probability of investing by 3.4 percent. Consistent with our mechanism, given the same volume of exports, firms prefer countries that purchase goods with higher relational specificity as finding new buyers for these goods would imply higher costs if the relationship was broken.Exporting at least one good with relational specificity above the 75th percentile increases the probability of investing by 2.2 times compared to exporting more generic goods (below the 50th percentile).

Keywords

Export, FDI, Relational Specificity.

JEL

F14, F23, F61.

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CEPII
20, avenue de Ségur
TSA 10726
75334 Paris Cedex 07

contact@cepii.fr
Press contact: presse@cepii.fr
www.cepii.fr – @CEPII_Paris

RESEARCH AND EXPERTISE ON THE WORLD ECONOMY

Securing Foreign Markets: Exports, Relational Specificity and New Investment Locations *

Giorgia Giovannetti (University of Florence, EUI)† Gianluca Santoni (CEPII)‡
Giulio Vannelli (University of Paris-Dauphine – PSL (LEDa))§

1 Introduction

In recent decades, the development of ICT technologies, a favorable institutional environment, and the rapid growth of many emerging economies have fostered the integration of trade and production between countries. Against this background, the most productive companies have increasingly expanded their markets outside their home borders, significantly increasing their profits. The most productive ones have resorted to foreign direct investment (FDI) and opened subsidiaries in foreign countries in order to serve those markets.

The choice between exports and investment as alternative strategies for competing in a foreign market has been studied extensively in the literature through the lens of the proximity-concentration trade-off (Brainard 1993, Helpman, Melitz & Yeaple 2004). According to these models, a firm decides to set up a subsidiary abroad if the shipping cost savings outweigh the fixed cost of setting up an on-site production facility.

In this article, we propose an additional mechanism that would lead companies to choose a particular location for a foreign subsidiary. Specifically, we consider that the affiliate can perform monitoring and control over the foreign business environment, rather than just production. By acting as an offshored entity of the parent company, the affiliate is able to monitor changes in the market, such as changes in customer preferences or the entry of new competitors, thus providing the parent company with crucial information to secure its profits in that market. We examine the existence of a "market securing" mechanism through an empirical analysis guided by observation of data: most firms that start investing in a new market do not open any production facilities there. Moreover, consistent with the securing mechanism, exports to foreign countries do not decrease after the establishment of the first subsidiary; on the contrary, after the investment they tend to increase.

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†giorgia.giovannetti@unifi.it
‡gianluca.santoni@cepii.fr
§corresponding author, giulio.vannelli@dauphine.psl.eu

To guide the empirical analysis we develop a simple theoretical framework in which a firm chooses to invest in a foreign country based on the importance of that country as an export destination. The higher the demand from a country, the more the company will be inclined to pay a fixed cost to ensure itself against possible disruption of the business relationship. In this case, in fact, it would lose an important source of profits and also would have to procure new customers by incurring additional search costs. The more personalized are the goods sold in a destination (which we approximate using the Martin, Mejean & Parenti 2020 relational specificity measure), the higher will be the costs of finding new buyers and thus the higher the likelihood of investing in the country to avoid business disruption. Therefore, the composition of the export basket is another key element in choosing an investment location.

Our stylized framework allows us to derive two predictions that we can test with the data: i) the likelihood of investing in a market is positively affected by the volume of bilateral exports; ii) for the same volume exported, the likelihood of investing in a market is positively affected by the degree of customization of goods sold.

Using administrative data from French manufacturing firms, we find empirical confirmation of the predictions derived from our simple theoretical framework. A 10 percent increase in the value of exports to a foreign market increases by 3.4 percent the probability of choosing that country to open a new subsidiary. Regarding the role of relational specificity, we find that, given the value exported, if the firm's exported portfolio of goods includes a highly customized product, i.e. one with a relational specificity value above the 75th percentile, the probability of investing in that country increases by 2.2 times compared to exporting more generic goods (i.e. below the 50th percentile of relational specificity).

Moreover, our results indicate that it is not the average relational specificity that determines the positive effect. What matters is the product with the highest level of relational specificity within the set of products sold in a market. These results support the existence of the mechanism we propose, and show that firms aim to secure their most important foreign markets. The importance of a foreign market to a company is measured by both the volume of purchases and the purchase of highly customized products.

Our paper refers to several strands of literature. First, we refer to the broad literature on the determinants of foreign investment. The seminal work by Helpman et al. (2004) provides the benchmark theoretical framework to study whether heterogeneous firms à la Melitz (2003) decide to serve a foreign market through exports or foreign investments addressing the proximity-concentration trade-off. Conconi, Sapir & Zanardi (2016) adopt a dynamic perspective to focus on firms deciding whether to serve a foreign market through exports or FDI when facing uncertainty on their profitability abroad. They show that serving the market with FDI is predicted by previous exports to that country and argue that this happens because firms want to uncover their profitability in a destination before incurring the fixed cost. Therefore, exports are a prerequisite of the investment because this allows experimenting with the foreign market and uncovering whether bearing the fixed costs of opening a plant abroad is worthwhile. Using Belgian firm-level data, they provide empirical evidence for their predictions showing the sequentiality between exports and investment. We draw on the results of Conconi et al. (2016) to consider an alternative mechanism whereby past exports can predict the location of future investment. As mentioned, we focus on the subsidiary's control and monitoring role in the foreign market, rather than on its production activity. Given the controlling role assumed by the subsidiary, the parent company can thus secure foreign profits through investment. In our framework, the decision to invest is based on a comparison of the investment costs with the expected value of profits from sales in the foreign market, and not with the transportation costs saved by foreign production. Since production is assumed to remain domestic, the company continues to incur its trade costs even after the investment. Related to our study also is Krautheim (2013), which extends Helpman et al.'s 2004 foundational framework to introduce the case of a manufacturing firm that establishes a service subsidiary abroad to reduce distribution costs while maintaining domestic production. In this "export-supporting investment" framework, the two modes of foreign market entry are complementary, and the choice of investment is based on a comparison of the trade costs and fixed costs of establishing the foreign affiliate. While we also examine the complementarity between exports and foreign investment, we depart from the export-supporting case and focus on the contribution of expected profits from foreign sales (approximated by past exports) to the location decision for new investments. In fact, by controlling for unobservable firm-year and location-year factors, we are able to mute the contribution of firm productivity and, in particular, trade costs to the location decision.

Second, we refer to the literature that has studied the determinants of firms' location choice. Previous studies emphasize the role of firm and location characteristics as key elements in location choices. Examples are the market potential and agglomeration economies at the investment location, as well as the productivity of the investing enterprise and its production network (the studies include: Head, Ries & Swenson 1995, Guimaraes, Figueiredo & Woodward 2000, Head & Mayer 2004, Du, Lu & Tao 2008, Chen & Moore 2010). Mayer, Méjean & Nefussi (2010) combine these two perspectives by nesting the foreign location choice on the firm's decision of investing abroad vs domestically. The firm's decision-making process is structured along two tiers: i) the firm decides whether to invest domestically or abroad; ii) then the firm deciding to invest abroad chooses among the different destinations in a discrete choice framework. When choosing the foreign location, French investors are attracted by countries with higher demand, measured through the market access of the foreign country. We build on the foreign location choice model in Mayer et al. (2010) by including firm-country trade transactions, thus allowing different firms, even in the same industry, to value differently the returns from future investments according to their pre-existing export linkages.

Finally, we link to an emerging literature that has studied the relationship between the structure of firms' trade and ownership networks. Antràs, Fadeev, Fort & Tintelnot (2022) show that ownership ties predict both foreign sourcing and export patterns of US multinational firms. Conconi, Leone, Magerman & Thomas (2022) show that Belgian firms acquired by foreign parent firms increase their overall trade participation, especially with countries in the parent firm's ownership network. Our work focuses on the role of exports in determining the corporate ownership network. In doing so, we offer a complementary perspective to these studies by examining the trade-investment relationship in the opposite direction; that is, by looking at bilateral trade as a driver of the location choice of new investments.

The remainder of this article is structured as follows: Section 2 presents motivating evidence for our model and develops a stylized framework of firms *securing the foreign market*; Section 3 describes the empirical implementation of the study and the data we use, and provides descriptive statistics on the estimation sample; Section 4 presents the results, and Section 5 concludes.

2 Securing foreign markets

2.1 Motivating evidence

To guide our empirical analysis, we develop a simple short-run partial equilibrium model that describes the decision-making process of a firm choosing the location of a new foreign investment. It is important to note that, in our framework, we consider the case where the firm's production remains predominantly domestic and the foreign subsidiary's activities are not exclusively manufacturing (including assembly). We argue that the subsidiary helps secure profits by allowing better monitoring of the foreign market (for example, by monitoring changing preferences or the entry of new competitors) and by establishing a closer relationship with local firms. This increases the expected returns to investing in countries with high export volumes and that purchase highly customized products.

The theoretical framework is motivated by some key facts in our data (Table 1). First, we find that exports to foreign countries that are chosen as the location of the subsidiary are about 2.5 times higher than exports to countries that are not chosen. Second, we find that in most cases the foreign affiliate is not engaged in production activities. Using the Orbis database (Bureau van Dijk) to determine the main activity of the affiliate, we find that the majority of new investments (61 percent) do not involve the creation of production facilities.[1] Third, the opening of a foreign affiliate does not reduce the parent's exports to that destination; on the contrary, for the median (average) parent, there is a 7.14 percent (34.15 percent) increase in exports following the investment.[2]

Table 1: Securing the exporting market: motivating evidence

Avg. X_{fjt-3} if $\text{FDI}^{Entry} = 0$ (th \$)	1775.8
Avg. X_{fjt-3} if $\text{FDI}^{Entry} = 1$ (th \$)	4306.3
FDI^{Entry} with no manuf. plant	61%
$(X^{Post}/X^{Pre})^{median}$	7.1%
$(X^{Post}/X^{Pre})^{wmean}$	34.1%

Notes: *Avg.* X_{fjt-3} *if* FDI^{Entry} are averages of total exports three years before the location decision, to countries that will not be chosen, *if* $FDI^{Entry} = 0$, and to countries that will be chosen, *if* $FDI^{Entry} = 1$. FDI^{Entry} *with no manuf. plant* is the percentage of FDI^{Entry} that do not give rise to any affiliate in the manufacturing sector. We retrieve information on the two-digit NACE industry of the affiliate from the Orbis database. The *LiFI* database provides indeed the Orbis ID number of the affiliate, if applicable. From this procedure we were able to collect the sector of the affiliates for 770 entry decisions (58% of total entry decisions). Each entry may relate to the establishment of more than one affiliate: 472 entries relate to affiliates only in the service sector, while 298 entries regard at least one affiliate in the manufacturing sector. $(X^{Post}/X^{Pre})^{stat}$ provides the percentage change for exports to the country in which the affiliate is located. X^{Post} is the mean (across firms) of exports in the year of entry and in the following two years; X^{Pre} is the mean (across firms) of exports in the three years before entry. Percentage change is calculated as $(X^{Post}/X^{Pre} - 1)$ x 100. *median* refers to the 50th percentile of the distribution; *wmean* to the weighted mean of the distribution, where the weight is the simple average of pre and post exports weights.

[1] Descriptive statistics for German firms' investments provide similar evidence (Krautheim 2013).

[2] This is consistent with empirical results in Bricogne, Franco-Bedoya & Lopez-Forero (2022) showing complementarity between investments and exports for French firms in the period before our analysis (2002–2009).

2.2 The firm location choice

Motivated by this evidence, we consider the case where the firm's production remains primarily domestic, and focus on the controlling role assumed by the subsidiary. We analyze how firms discriminate between different foreign locations conditional on the decision to enter a new foreign market.

When choosing the foreign country, the parent company compares the fixed costs of establishing its foreign affiliate with the expected return on the investment. Given that the main task of the affiliate is not to produce the good, the return on investment is not limited to the transportation costs avoided through local production. Since the affiliate has a controlling role in the foreign business environment, the return on investment for the parent company is also a function of its business ties to that market.

We assume that the demand faced by firm f from any country i is given by a classical CES utility function, $q_i = A_i p_i^{-\sigma}$, with total revenues to the firm f equal to:

$$X_f = A_d p_d^{1-\sigma} + \sum_j A_j p_j^{1-\sigma} \tag{1}$$

where the first term on the RHS indicates domestic revenues and the second term foreign revenues, given by the sum of revenue from all foreign destinations j; p_d is the price of the good sold by the firm in the domestic country d and p_j the price in each foreign country, with $p_j = p_d \tau_{dj}$ and $\tau_{dj} > 1$ representing the iceberg transportation costs for shipping goods from d to j; $\sigma > 1$ is the elasticity of substitution across varieties.

Since production occurs domestically, the contribution of a given foreign country j to gross profits is a function of total exports to the country j:

$$\Pi_{fj}^G = A_j p_j^{1-\sigma} \tag{2}$$

To decide on foreign location, the company chooses the country that maximizes the expected net profits of the investment. Investing abroad allows the company to increase control over the local business environment, thus securing export profits. In the absence of a local subsidiary, the parent company cannot control trading partners in the foreign market and is therefore exposed to an exogenous probability of disruption of the business relationship, $\alpha \in (0, 1)$. In the latter case, the company loses export profits and must incur new search costs to find new buyers in the market.

Equation 3 shows that, by entering country j ($FDI_{fj}^{entry} = 1$), company f will bear the related fixed costs of investment (F_j), but at the same time it will be able to improve its control over local trading partners and thus secure its gross profits from possible negative shocks in that market (Π_{fj}^G in Eq. 2). If firm f does not enter country j ($FDI_{fj}^{entry} = 0$), it will not bear the fixed cost of investment, but nor will it exercise the same level of control over its local activities. Therefore, it will be exposed, with a given exogenous α probability, to the risk of disruption of the business relationship and the loss of the resulting profits.[3] In the event of business relation

[3]We implicitly assume that the probability of breaking a business relationship (α) is the same for all firms, all countries, and all firm-country pairs. Although the consideration of such firm-, country-, or firm-country-specific probabilities complicates the model, this does not qualitatively affect its predictions. The assumption that the outage probability is country-specific (α_j) and, for example, is related to institutional quality, is absorbed in the empirical analysis by the country-year fixed effects that we include in all specifications. The same is true in the case of an enterprise-specific probability (α_f). As for the possibility that the probability

disruption (with probability α), the company loses profits from trading with country j and must also bear the cost of finding other customers willing to buy its products in that market (s_{fj}). In the case that the firm does not face the disruption (with probability $1-\alpha$) it obtains the profits without incurring the fixed costs of entry.

$$E(\Pi^N_{fj}) = \begin{cases} if \quad FDI^{entry}_{fj} = 1 & \Pi^G_{fj} - F_j \\ if \quad FDI^{entry}_{fj} = 0 & \begin{cases} \Pi^G_{fj} & \text{with prob} = (1-\alpha) \\ -s_{fj} & \text{with prob} = \alpha \end{cases} \end{cases} \tag{3}$$

Maximizing expected net profits for each country shows that entry is profitable as far as

$$F_j < \alpha(\Pi^G_{fj} + s_{fj}) \tag{4}$$

The First Order Conditions in Equation 4 imply that the likelihood of investing is a strictly positive function of the trade relationships, Π^G_{fj}, of the probability of disruption, α, and of search costs, s_{fj}.

This simple stylized framework provides two predictions that we can test with our data. First, the higher the profits from exports to a country, the more the firm will be inclined to pay a fixed cost to ensure against the possible disruption of the business relationship with that market. This is because, as the firm enters the market, it can increase its control over its activities abroad. Since production remains domestic, bilateral trade costs do not influence the investment decision. In fact, the latter is strictly a positive function of exports to the country. In other words, one can regard the fixed costs of investment as an insurance premium: the probability of paying the premium will increase along with the value of the insured risk.

Second, the probability of entering a foreign country is a function of the costs of finding new customers (s_{fj}) that would have to be incurred if existing business ties were severed. Search costs are firm-country-specific because they depend on the products exported by each firm to a given market. The more customized the products sold in a market, the higher the search costs for new buyers will be. Therefore, the level of customization increases the likelihood of securing a foreign market. In our empirical analysis, we will test these two predictions, providing evidence to support the underlying mechanism.

of termination is specific to the firm-country pair (α_{fj}), it can be assumed that some of these risks are observable by the firm and have already been taken into account at the time of the decision to initiate the business relationship. In addition to these observable risks, there remains a constant exogenous probability of disruption, α.

3 Empirics

3.1 Empirical strategy

The simple model sketched in Section 2 allows us to derive an empirical specification in which the probability of choosing a foreign location is a function of the firm's expected profits (i.e. past exports) and fixed investment costs. Thus, our unit of analysis is the firm (f), which in a given year (t) invests in only one new foreign market (j) by choosing from a set of different destinations in which it has made no other previous investments. We limit the empirical analysis to firms entering a new country for two main reasons.

First, given the nature of the phenomenon we are studying, considering entry into locations without prior investments allows us to mitigate endogeneity problems. In this way, we rule out, for example, that the observed business ties correspond to intra-firm trade; we also curb the effect of agglomeration forces generated by the investor firm's ownership network (Mayer et al. 2010, Procher 2011).

Second, by restricting ourselves to new investments, the problem of each enterprise becomes a pure discrete choice model. As demonstrated by Guimaraes, Figueirdo & Woodward (2003), discrete choice models can be conveniently estimated using a Poisson Pseudo Maximum Likelihood (PPML) estimator. The PPML is not only equivalent to a conditional Logit model, but provides much more flexible implementation with the ability to include a stringent set of fixed effects. Finally, studying firms entering a single location allows us to mitigate the effects of strategic intra-firm interdependencies between destinations, which are not included in our theoretical framework.[4] Guided by Equation 4, the baseline empirical specification is as follows:

$$FDI_{fjt}^{entry} = e^{(\beta_0+\beta_1 ln(X_{fjt-3})+\gamma_{ft}+\delta_{jt})} + \varepsilon_{fjt} \quad (5)$$

FDI_{fjt}^{entry} is a dummy equal to 1 if firm f in year t chooses country j, and 0 otherwise. As said, since we are interested in entry in new locations, the set of possible investment destinations differs for each firm-year choice.[5]

The main regressor of interest is $ln(X_{fjt-3})$, which measures the log of total exports by firm f to country j in year *t-3*. The use of a three-year lag for exports mitigates the problems of simultaneity with the location choice, thus allowing us to consider trade predetermined with respect to the investment decision.[6]

Because we want to arrive at an empirical test of our simple theoretical framework, we estimate Equation 5 on the sample of positive bilateral exports only. Aware that this may introduce selection bias, we present in Table A.8 in Appendix A.2 the estimates obtained by including also possible locations with zero past exports; the results are in line with those presented in the main text.

To control for possible omitted variables, we include firm-year (*ft*) and country-year (*jt*) fixed effects. By including country-year fixed effects, we absorb differences in investment fixed costs across markets (such as

[4]We also estimated our choice model on the entire sample, that is, including firms that made investments in more than one country in the same year (434 location choices). The results are in line with those presented in the main text and are available upon request.

[5]In the case where a firm does two investments in two different years, the set of possible destinations for the second choice does not include the country in which the firm invested in the first choice.

[6]As a robustness check, we tested different lags for bilateral exports: exports at t-1, exports at t-5, and total exports over the period t-5 to t-1. The results, that are consistent with those in the main text (where our preference is for exports at t-3), are reported in Appendix, Table A.6.

institutional quality, distance and foreign country business cycle); while by including firm-year fixed effects, we control for all unobservable characteristics of the firm's decision center (such as management risk aversion and firm productivity). This set of fixed effects allows us to focus on the contribution of pre-existing business relationships on firms' location choice for new foreign investment, silencing the role of productivity differentials and trade costs. In Section 4 we provide additional results introducing a more stringent set of fixed effects to control for unobservable factors at the firm-world region and/or industry-location level. In Appendix A.3 we further address endogeneity concerns by providing results based on an instrumental variable approach.

To investigate the role of the relational specificity of products sold by an enterprise, we need to adjust our specification. For this purpose, we exploit information on the exact composition of goods included in each firm's export basket for each destination-year. To this end, we first examine the extensive margin of relational specificity, checking whether the export basket contains at least one good with a specificity level above a given percentile, $\mathbb{1}(X^{Spec>p\#}_{fjt-3})$. The empirical specification now becomes:

$$FDI^{entry}_{fjt} = e^{(\beta_0+\beta_1\mathbb{1}(X^{Spec>p\#}_{fjt-3})+\gamma_{ft}+\delta_{jt})} + \varepsilon_{fjt} \tag{6}$$

We then examine the intensive margin of relationship specificity by looking at several summary statistics to characterize the basket of products exported by a firm to a particular location, $Spec^{stat}_{fjt-3}$. In particular, we examine the average relational specificity of the basket of products sold by the enterprise ($Spec^{mean}$), the weighted average ($Spec^{wmean}$) and the maximum value ($Spec^{max}$). The empirical specification now becomes:

$$FDI^{entry}_{fjt} = e^{(\beta_0+\beta_1 Spec^{stat}_{fjt-3}+\gamma_{ft}+\delta_{jt})} + \varepsilon_{fjt} \tag{7}$$

3.2 Data

To build our estimation sample, we take advantage of the richness of firm-level French administrative data. Using a common identifier for firms in the different databases (the SIREN code), we can combine information from different sources and merge the business and ownership network of all companies located in France.

Information on ownership ties comes from the *LiFi* database.[7] This database reports all existing ownership ties involving French firms, either as French affiliates or as French parents. In our analysis, we focus on French parent firms in the manufacturing sector that invest abroad, and consider only direct ties between parent and affiliate.[8] Until 2011, the LiFI database is sample-based and representative only for firms above a certain threshold[9], while from 2012 onward it is exhaustive. To avoid this discontinuity, we limit our study to the

[7] *Liaisons Financières*, collected by the *INSEE, Institut national de la statistique et des études économiques.*

[8] We acknowledge that investment location choice may also be the result of group-level strategies related to the organization of the hierarchical architecture of the entire network, such as profit shifting. While being part of a domestic group is controlled by firm-year fixed effects, in our baseline specification we cannot fully control for being part of an international network, and especially for its geographical scope. To address this issue, we estimate the baseline regression with the addition of firm-foreign region fixed effects (see Section 4), and provide additional results (see Section A.2) conducted only on the sub-sample of independent firms – i.e. ultimate owners and firms that are not part of a group. The results reported in the text are also largely confirmed in these sub-samples.

[9] The survey includes all firms with more than 500 employees or a turnover of more than 60 million euros (regardless of business sector).

period 2013–2018 and use 2012 as the baseline to define, for each location choice in subsequent years, the set of possible destinations as those in which the firm has not made previous investments.[10]

Data on firm exports come from the *Douanes* dataset, collected by the *Direction Générale des Douanes et Droits Indirects*. This source reports imports and exports, with origin and destination country, respectively, for French firms at a very disaggregated product level. For the purpose of our analysis we use export data at six-digit Harmonized System (HS) level.[11]

Finally, we source our measure of relational specificity from Martin et al. (2020), constructed using the average duration of a trade relationship for each HS6 product from French exporters' firm-to-firm transactions.

3.3 In-sample descriptive statistics

Our estimation sample includes 1121 firms that enter at least one new location in the period 2013–2018 (Table 2). Overall, we study 1336 location choices across 78 countries. The average number of entry decisions per firm (in different years) is equal to 1.19, whereas the average number of entry decisions per year is 223.[12] A typical French parent firm acquires at least 75% of its affiliate when entering a new location. Therefore, in line with the mechanism described in Section 2, the control of the local partner to secure the foreign market appears as a plausible determinant for the location choice.[13]

The average firm can choose to locate among 19.7 exports destinations, which implies an unconditional probability of choosing a country equal to 5.07%. Our theoretical framework indicates that, once firm-year and destination-year specific determinants are excluded, location choice is not random but a function of expected profits (approximated by past exports). As discussed above, when choosing a foreign location, each firm might only entry countries where it has not previously set an affiliate. Therefore, the location depends on the previous ownership network and each firm-year decision has a different set of available destinations. In the econometric section we formally test our model quantifying the effect of past exports on the probability of choosing a country.

Geographically, the United States of America and Germany are by far the most frequent choice for new investments. Figure 1 reports that 148 and 131 firms entered these two countries, respectively, over the period 2013–2018. Other European countries follow as major destinations: Spain, Italy and the UK are chosen by around 80 firms each, and Belgium, Portugal and Switzerland by about 50 firms. Beyond European partners, we find a heterogeneous group of middle-income and fast-growing countries such as China, Morocco, Tunisia,

[10] A possible concern is that firms with no investments in a country in 2012 may have previously set and closed foreign plants there that we cannot observe, since, as said, the *LiFi* dataset has universal coverage since 2012. This would constitute an omitted variable because the observed lagged exports may be the result of pre-2012 investments. Looking at the frequency of firm exit and re-entry in the same foreign country in the period that we do observe (i.e. 2012–2018), we find that this occurrence is very rare in our sample: the 96% of firm-country ownership ties are indeed constant throughout the time-span.

[11] As detailed in Bergounhon, Lenoir & Mejean (2018), since 2011, companies can use simplified declarations without product details for intra-EU exports below a threshold of 460,000 euros; before 2011, the threshold was 150,000 euros. As concerns extra-EU transactions, there was a declaration threshold of 1,000 euros (or 1,000 kilos) up to 2009, which has been removed since 2010. Although our sample includes only multinationals, whose intra-EU annual transactions likely exceed the simplified declaration threshold, we conducted a robustness analysis of our results by considering intra- and extra-EU locations separately, to address the concern of possible censoring of intra-EU data. The results of the analyses on the extra-EU sample are fully consistent with those in Section 4, both with respect to the role of total exports and, more importantly, with respect to the role of products with a high degree of relational specificity. Tables are available upon request.

[12] Table A.1 and A.2 in the Appendix report a more detailed disaggregation of FDI entry per firm and per year.

[13] Table A.3 in the Appendix reports a more detailed disaggregation of FDI entry per ownership type, i.e. Control, Minority and Portfolio investments.

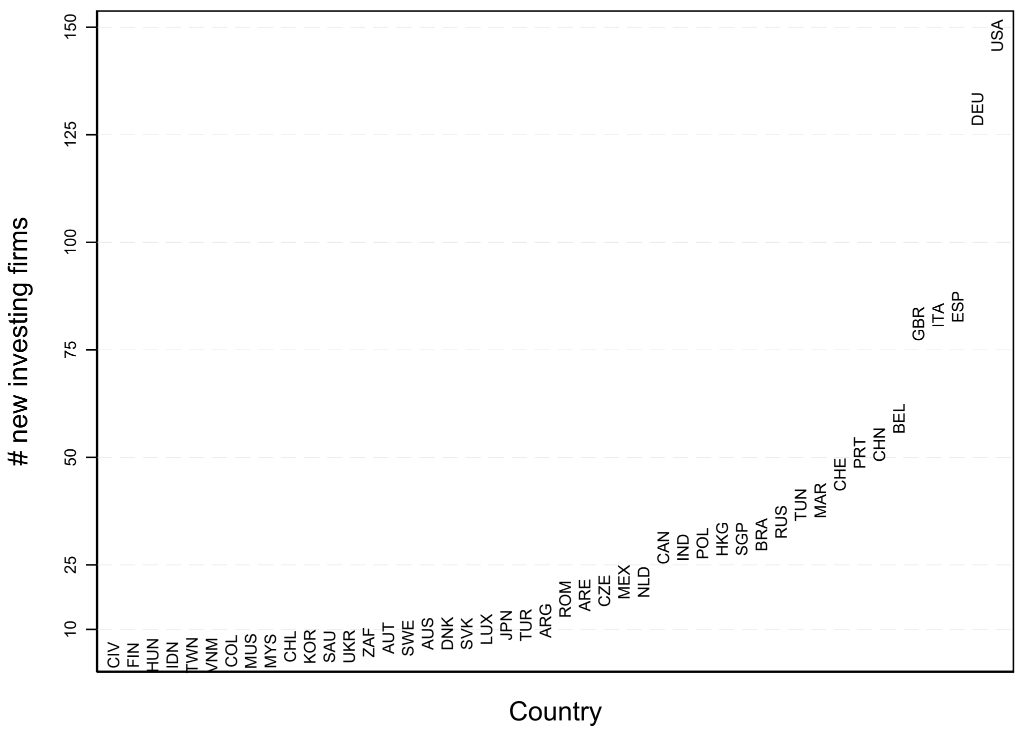
Table 2: In-sample descriptive statistics

# of observations fjt	26,307
# FDI^{Entry} = 1	1,336
# firm	1,121
# country	78
Avg. # FDI^{Entry} per firm	1.19
Avg. # FDI^{Entry} per year	223
Avg. ownership share	75.6%
Avg. # of countries per decision	19.69
Prob. to choose country j	5.07%

Notes: Descriptive statistics on the estimation sample. **Panel A**: # FDI^{Entry} = 1 reports the number of location choices under study. *# firms* is the number of unique firms in the sample. *# countries* is the number of countries that receive at least a new entry. *Avg. # FDI^{Entry} per firm* is the average number of decisions by each firm over different years. Table A.1 shows the number of entries by firm. *Avg. # FDI^{Entry} per year* gives the average number of new location choices per year: Table A.2 shows the number of new entries for each year. *Avg. ownership share* is the average share of direct control over the affiliate by the French parent. Given that the set of possible locations is firm-year specific, *Avg. # of countries per decision* is the average number of possible destinations for each firm choice; this yields an unconditional probability of choosing a foreign country equal to 1/19.69 = 5.07%.

Brazil and Hong Kong, as well as European transition economies, such as Russia, Poland, and Romania.[14]

Figure 1: FDI entry by country



Notes: The graph reports the total number of firms entering in each country, denoted by ISO 3 code. Due to data confidentiality, only countries receiving more than 3 new firms are reported.

[14] Table A.4 and A.5 in the Appendix provide additional descriptive statistics on FDI entry disaggregated by region and income group.

4 Results

This section presents and discusses the main econometric results. Additional results and robustness checks are reported in Appendix A.2.

Table 3 shows that the location choice is predicted by the value of exports to a destination country. Estimation is conducted using a discrete choice model, as detailed in Equation 5. As discussed above, firm-year (ft) and country-year (jt) fixed effects are always included to control for: firm-year specific confounding factors such as size, productivity, or being part of a domestic group; and country-year factors such as GDP per capita, distance (from France) and the fixed costs of investing. $\ln(X_{fjt-3})$ measures the log of exports three years prior to the decision of entry. On average, we find a positive and significant coefficient: an increase in the log of exports by 10% increases the likelihood to choose that country by 3.4 percent (column 1). This result is consistent with the claim that the location of new investment is determined by the level of previous exports, since investment secures profits from that specific market.[15]

In columns 2 to 4 we apply a more stringent set of fixed effects to address possible identification issues. First, we add firm-world region fixed effects (column 2).[16] This set of fixed effects controls for firm-by-region characteristics that may affect both the location choice of a new investment and pre-existing trade and ownership relations. Several such factors may be operating at the firm-region level: having affiliates in contiguous countries; having a trade network skewed towards only some regions[17]; having managers or sales directors with previous experience in a given geographical zone. Despite a much more demanding specification, the estimated coefficient is only marginally affected.

In column 3 of Table 3 we also include country-industry-year fixed effects. Industries are defined as four-digit NACE.[18]. This set of fixed effects allows controlling for foreign country specialization patterns as well as absorbing any country-industry-year specific shocks. An illustrative example might be the comparative advantages held by some countries in particularly narrow product niches, or trade policy shocks, both on tariff and non-tariff measures, that could simultaneously affect exports and investments. Also in this case, despite the reduced sample due to the very stringent specification, we are still able to estimate a positive and significant coefficient, in line with the previous evidence.

Finally, in column 4 we replace firm-region and firm-time fixed effects with firm-region-time fixed effects. This allows controlling for time-varying firm-region specific factors, or putting it differently, for firm-year factors

[15] Of course, the reported evidence could also be the result of a process of "trial and error" (Conconi et al. 2016), where firms first gain experience in foreign markets through exports and only pursue FDI if they find it sufficiently profitable. To address this concern, we control for the role of prior experience by restricting the sample of possible locations to countries where firms have exported continuously in the five years prior to the investment (Table A.6, column 4). Even after controlling for export experience, we find that export volume positively and strongly affects investment location choice. This result further supports the existence of the "securing market" mechanism and suggests that it operates over and above Conconi et al.'s 2016 profitability assessment channel.

[16] We apply the World Bank partition: Europe & Central Asia, East Asia & Pacific, North America, Middle-East & North Africa, Latin America & Caribbean, Sub-Saharan Africa, and South Asia. Table A.4 in the Appendix details the number of entries in each of these regions.

[17] Consistently with a multiple-tier decision process (Mayer et al. 2010) the inclusion of firm-region fixed effect is equivalent to restraining the location choice within the selected region.

[18] The estimation sample includes a total of 184 four-digit NACE industries. The industries whose firms enter in more new countries are: NACE 2351 "Manufacture of instruments and appliances for measuring, testing and navigation" (66 new entries); NACE 3250 "Manufacture of medical and dental instruments and supplies" (45 new entries); NACE 2120 "Manufacture of pharmaceutical preparations" (40 new entries).

varying across regions. Examples are *variation through time* of some characteristics of the trade and ownership network, as discussed for column 2. Results are robust to controlling for this additional channel.

In column 5 we explicitly test our mechanism by excluding investments that imply the establishment of at least a manufacturing plant. In this case the affiliate is not going to produce and therefore the determinants for entry in the foreign country must be driven by alternative channels, such as the one we propose. We find also in this case a positive and significant coefficient whose magnitude is in line with the baseline estimation in column 1.

In Appendix A.2 we provide additional results as robustness checks to our baseline identification. We further address endogeneity issues by providing results when adopting an IV approach (A.3); and extend our mechanism to the case of *securing the importing market* (A.4).[19]

Table 3: Export and FDI entry

	(1)	(2)	(3)	(4)	(5)
VARIABLES		FDI^{entry}_{fjt}			$FDI^{entry,Serv}_{fjt}$
$\ln(X_{fjt-3})$	0.339^a	0.339^a	0.527^a	0.535^a	0.331^a
	(0.023)	(0.027)	(0.107)	(0.108)	(0.036)
Observations	26,307	11,202	836	818	5,707
FEs	ft jt	ft jt fR	ft fR jkt	fRt jkt	ft jt
Cluster	f j	f j	f j	f j	f j

Notes: PPML estimation. FDI^{entry}_{fjt} is a dummy equal to one if firm f investing in year t chooses country j. $FDI^{entry,Serv}_{fjt}$ is a dummy considering only investments without the establishment of any manufacturing plant. $\ln(X_{fjt-3})$ is log of bilateral exports (in thousands \$). *ft*, *jt*, *fR*, *jkt*, *fRt* are, respectively, firm-year, country-year, firm-WBregion, country-NACE4d-year, firm-WBregion-time fixed effects. Two-way clustered standard errors at the firm f and country j level. "a" p < 0.01, "b" p < 0.05, "c" p < 0.1.

Figure 2 investigates the existence of heterogeneous effects across different export deciles. Indeed, export intensity matters for entering a foreign country; the figure shows a net increasing positive impact of exports along deciles. The probability of entering a foreign country is about 12 times higher if the exported value is in the top decile with respect to the lowest decile (used as omitted category).[20] Note that the effect in the last decile is about 4 times higher than between the 50th and 60th percentiles.[21]

We can now discuss the results on the role of relational specificity. In general, relational specific products require costly customization as customer-supplier relationship-specific investments, which reduces their substitutability and increases the cost of finding alternative buyers. Therefore, products with high relational specificity are critical for the companies that produce them. Our theoretical framework predicts that the presence of these types of goods in the export basket of a firm-country should positively influence the choice to locate in a foreign country (given equal export volumes).

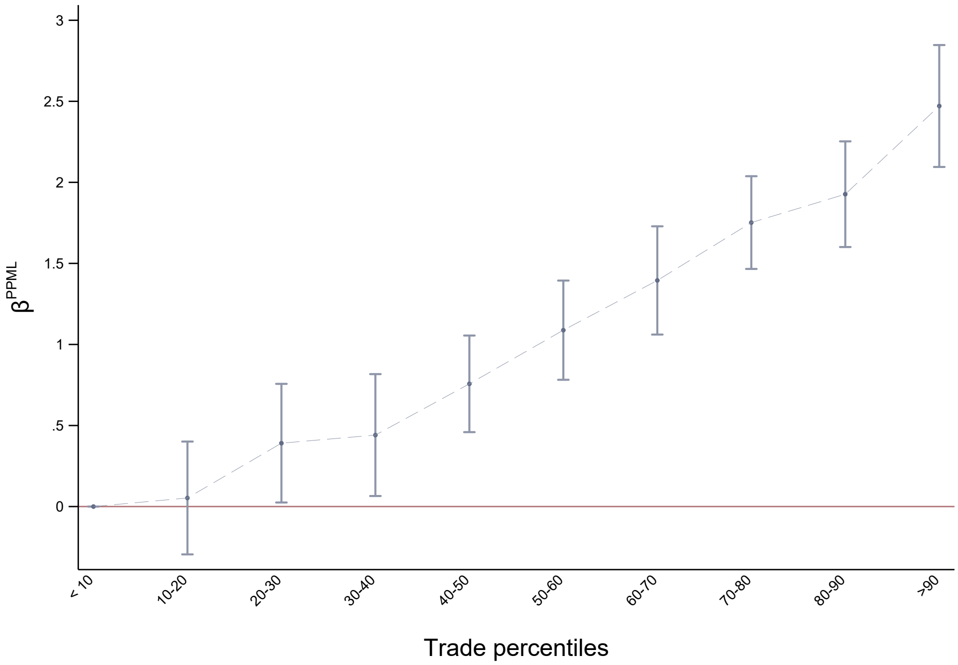
To assess the degree of product specificity, we use a measure developed by Martin et al. (2020). Using the average duration of firm-to-firm trade relationships, the authors estimate a product-level index of relationship

[19]The results obtained in the various robustness analyses largely confirm what is presented in the main text.

[20]Following the usual interpretation of Logit models estimations, the exponentiated coefficient represents the odd-ratio of an increase in the regressor by 1: $\exp(2.471) \approx 11.83$.

[21]$\exp(2.471)/\exp(1.088) \approx 3.99$.

Figure 2: Export and FDI entry: the intensive margin



Notes: The figure reports coefficients and 95% confidence intervals estimated from a regression of FDI^{entry}_{fjt} against deciles of log exports (thousands $).

stickiness that is theoretically grounded into a search model encompassing match quality. The result is an index of the stickiness of business relationships that modulates the dynamics of inter-firm relationships in response to uncertainty shocks. Following an uncertainty shock, products with a high level of specificity tend to show a lower rate of new relationship formation. An important virtue of this measure over previous classifications of product differentiation (Rauch 1999, Nunn 2007) is that it can be explained by a combination of switching costs, sunk investments, information asymmetries, and information frictions, all of which affect, in a manner consistent with our simple theoretical framework, the cost of rebuilding a business relationship after a disruption.[22] In addition, because the specificity index is available at a high level of disaggregation (6-digit HS) it can be combined directly with international trade data, which allows us to exploit information on the composition of products sold by a firm in a given market.

In Table 4, we provide evidence that the likelihood of entry in a foreign country is higher when exporting high-specificity products. In column 1 we show that exporting at least a product whose relational specificity is above the 50th percentile of the distribution, $\mathbb{1}(X^{Spec>p50}_{fjt-3})$, increases the likelihood of choosing the foreign country by 2.6 times with respect to the case in which only products with relational specificity below the 50th percentile are exported.

Additionally, the effect of relational specificity grows along the distribution. In column 2 we split the dummy $\mathbb{1}(X^{Spec>p50}_{fjt-3})$ according to whether at least one product in the trade basket has a relational specificity in the third quartile of the distribution, $\mathbb{1}(X^{PCI,p50-75}_{fjt-3})$, or in the top quartile, $\mathbb{1}(X^{Spec,p75-100}_{fjt-3})$. Exporting at least a product with a specificity in the top quartile, $\mathbb{1}(X^{Spec,p75-100}_{fjt-3})$, increases the likelihood of entry in a foreign

[22]This is why products with high relational specificity tend to show more resilient business-to-business connections.

country approximately 3.7 times compared with a case in which only products with relational specificity below the 50th percentile are exported. This result is not driven by the total value of exports. Increasing total exports may itself imply an increase in the probability of exporting relational specific goods. In column 3 we show that exporting at least a product with a specificity in the top quartile, $\mathbb{1}(X^{Spec,p75-100}_{fjt-3})$, still has a significantly higher impact than exporting only products with specificity below the 50th percentile, even controlling for the value of trade. The value of trade does not offset the role of relational specificity: the coefficient for $\mathbb{1}(X^{Spec,p75-100}_{fjt-3})$ implies an increase in the likelihood of choosing a foreign country by 2.2 times, given the value of exports, compared to a case in which only products with relational specificity below the 50th percentile are exported.

In column 4 we provide similar results replacing the measure of relational specificity with the Product Complexity Index (PCI) provided by the Atlas of Economic Complexity.[23]

Table 4: Relational specificity and FDI entry - I

	(1)	(2)	(3)	(4)
VARIABLES	FDI^{entry}_{fjt}			
$\mathbb{1}(X^{Spec>p50}_{fjt-3})$	0.950^a			
	(0.128)			
$\mathbb{1}(X^{Spec,p50-75}_{fjt-3})$		0.506^a	0.347^b	
		(0.138)	(0.137)	
$\mathbb{1}(X^{Spec,p75-100}_{fjt-3})$		1.315^a	0.800^a	
		(0.138)	(0.128)	
$\mathbb{1}(X^{PCI,p50-75}_{fjt-3})$				0.584^a
				(0.153)
$\mathbb{1}(X^{PCI,p75-100}_{fjt-3})$				0.742^a
				(0.144)
$\ln(X_{fjt-3})$			0.309^a	0.324^a
			(0.022)	(0.022)
Observations	26,307	26,307	26,307	26,307
FEs	ft jt	ft jt	ft jt	ft jt
Cluster	f j	f j	f j	f j

Notes: PPML estimation. FDI^{entry}_{fjt} is a dummy equal to one if firm f investing in year t chooses country j. $\mathbb{1}(X^{Spec>p50}_{fjt-3})$ is a dummy equal to 1 if the firm exports at least a good whose relational specificity is above the 50th percentile of the distribution. $\mathbb{1}(X^{Spec,p50-75}_{fjt-3})$ is a dummy equal to 1 if the firm exports at least a good whose relational specificity is above the 50th percentile and equal to or below 75th percentile of the distribution. $\mathbb{1}(X^{Spec,p75-100}_{fjt-3})$ is a dummy equal to 1 if the firm exports at least a good whose relational specificity is above the 75th percentile of the distribution. PCI is the Product Complexity Index. $\ln(X_{fjt-3})$ is log of bilateral exports (in thousands \$). ft and jt are, respectively, firm-year and country-year fixed effects. Two-way clustered standard errors at the firm f and country j level. "a" $p < 0.01$, "b" $p < 0.05$, "c" $p < 0.1$.

[23] `https://atlas.cid.harvard.edu/`. The Product Complexity Index (PCI), based on the economic complexity approach by Hidalgo & Hausmann (2009), is calculated at the HS4 product level; we assign to each HS6 product the PCI of the corresponding HS4 heading.

In Table 5, we further examine how the relational specificity of the exported basket affects the likelihood of choosing a foreign country. In so doing we exploit the continuous nature of the measure of relational specificity to construct different summary statistics for a given firm-destination-year export basket, $Spec^{stat}_{fjt-3}$.

In column 1 we find that increasing the mean relational specificity of the exported basket positively increases the likelihood of choosing a foreign country. This effect is not driven by products with high export shares: in column 2 we find, indeed, a not significant coefficient for the weighted mean, where the weight equals the product's export share. In contrast, what drives the average effect is the product with the highest level of relational specificity, column 3.

In columns 4 to 6 we control for the value of exports. Despite small differences in the magnitude and in the precision of the coefficients, results are not qualitatively affected. Using the coefficient for $Spec^{max}_{fjt-3}$ from column 6 we can give a quantification of the impact of relational specificity. A unit increase in the relational specificity of the product with the highest level in the exported basket increases the likelihood of choosing a foreign country by 2.14 times. Looking at the distribution of relational specificity, we find that one unit increase corresponds to moving from the 50th to about the 99th percentile of the distribution. In other words, given two identical firms exporting the same total value to a foreign country, the firm whose highest relational specific product is at the 99th percentile of the distribution, is 2.14 times more likely to enter a foreign country than a firm whose highest relational specific product is at the 50th percentile.

This suggests that firm entry in a foreign country is predicted by the desire to enhance control over the markets where critical goods are sold, even if those goods do not necessarily account for the lion's share of trade. This clearly distinguishes the importance of trade from the point of view of its criticality versus the point of view of its intensity.

Table 5: Relational specificity and FDI entry - II

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES			FDI^{entry}_{fjt}			
$Spec^{mean}_{fjt-3}$	0.315^b			0.455^a		
	(0.125)			(0.135)		
$Spec^{wmean}_{fjt-3}$		0.042			0.254^c	
		(0.112)			(0.146)	
$Spec^{max}_{fjt-3}$			1.481^a			0.759^a
			(0.168)			(0.145)
$\ln(X_{fjt-3})$				0.341^a	0.341^a	0.313^a
				(0.023)	(0.023)	(0.023)
Observations	26,307	26,307	26,307	26,307	26,307	26,307
FEs	ft jt	ft jt	ft jt	ft jt	ft jt	ft jt
Cluster	f j	f j	f j	f j	f j	f j

Notes: PPML estimation. FDI^{entry}_{fjt} is a dummy equal to one if firm f investing in year t chooses country j. $Spec^{mean}_{fjt}$ is the mean of relational specificity across exported products. $Spec^{wmean}_{fjt}$ is the weighted mean of relational specificity across exported products, where weights equal the value of exports by product. $Spec^{max}_{fjt}$ is the maximum level of relational specificity across exported products. $\ln(X_{fjt-3})$ is log of bilateral exports (in thousands \$). ft and jt are, respectively, firm-year and country-year fixed effects. Two-way clustered standard errors at the firm f and country j level. "a" $p < 0.01$, "b" $p < 0.05$, "c" $p < 0.1$.

5 Conclusions

The international trade literature has extensively studied the determinants that lead companies to establish subsidiaries in foreign countries, as well as examined the complementarity vs substitutability relationship with exporting. This paper contributes to this literature by examining an alternative channel through which exports activities lead firms to open foreign subsidiaries: securing the profits from the foreign market arising from exports, especially when the products sold have a high degree of relational specificity. In our conceptual framework, the foreign subsidiary plays a monitoring and controlling role that helps to prevent disruption of the commercial relationship. This is in line with the observation in our data showing that the majority of French manufacturing firms do not set up production facilities when they enter a new market, and that bilateral exports tend to increase after the investment.

We propose a simple theoretical model consistent with these stylized facts, and provide empirical evidence to support its predictions. A 10 percent increase in the value of exports to a foreign country has a 3.4 percent increase in the probability of selection of that country as the location for a new foreign affiliate. We also find a significant effect of the type of products exported in addition to the value of exports. For the same exported value, the specificity of the products exported is a determinant of the location of French manufacturing firms. In other words, if the portfolio of exported goods includes a product with high relational specificity (i.e. above the 75th percentile of the distribution), the probability of investment in that country increases by a factor of 2.2 compared to firms exporting more generic goods to that country (i.e. below the 50th percentile of specificity).

Overall, these results confirm the existence of a "market securing" mechanism for the location choice of foreign investments by French manufacturing firms. Our findings on the complementarity between exports and foreign investments are also relevant from a policy perspective, as they advocate for the importance of harmonizing trade and investment policy.

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A Appendix

A.1 Additional descriptive statistics

Table A.1 reports a detailed disaggregation of FDI entry per firm. As discussed above, entries per firm relate to decisions in *different* years. A total of 83% of firms in our sample enter only a new country; 14% enter two new countries, while less than the 3% enter 3 or 4 countries.

Table A.1: FDI entry per firm

# FDI entries per firm	**# of firms**	**% of firms**	**Total # FDI entries**
1	936	83%	936
2	158	14%	316
3	24	2%	72
4	3	0%	12
-	1121	100%	1336

Notes: *# FDI entries per firm* represents the number of different location choices (in different years) per firm.

Table A.2 reports a detailed disaggregation of FDI entry per year.

Table A.2: FDI entry per year

Year	**# FDI entries**	**% FDI entries**	**Cum. %**
2013	336	25%	25%
2014	345	26%	51%
2015	187	14%	65%
2016	174	13%	78%
2017	152	11%	89%
2018	142	11%	100%
Total	1336	100	-

Table A.3 reports a detailed disaggregation of FDI entry per ownership type, i.e. Control, Minority and Portfolio investments. Consistent with our mechanism, in the large majority of cases, entries involve direct control of the subsidiary (77%).

Table A.3: FDI entry per ownership type

Investment type	**Ownership share**	**# FDI entries**	**% FDI entries**
Control	50.01-100%	1028	77%
Minority	10.01-50%	226	17%
Portfolio	0.01-10%	82	6%
Total	-	1336	100%

Table A.4 provides additional descriptive statistics on FDI entries disaggregated by region. Region classification is sourced from the World Bank. Table A.5 reports disaggregation by income group. Income classification is sourced from the World Bank. Consistent with our mechanism, the majority of entries relate to high and middle-high income countries in Europe, North America and East Asia & Pacific.

Table A.4: FDI entry by region

Region	**# FDI entries**	**%**
Europe & Central Asia	744	56%
North America	177	13%
East Asia & Pacific	164	12%
MENA	111	8%
LA & Caribbean	77	6%
Sub-Saharan Africa	33	2%
South Asia	30	2%
Total	1336	100 %

Notes: Region classification is sourced from the World Bank.

Table A.5: FDI entry by income class

Income Class	**# FDI entries**	**%**
High	919	69%
Middle-High	210	16%
Middle-Low	154	12%
Low	49	4%
.	4	0%
Total	1336	100%

Notes: Income classification is sourced from the World Bank: income category for Taiwan is not reported.

A.2 Additional results and robustness checks

A.2.1 Baseline robustness

This section provides additional results as robustness checks to our baseline identification.

In Table A.6 we show the robustness of our baseline results to the use of alternative time lags between exports and investment entry. For ease of comparison, in column 1 we report the baseline estimate using a 3-year lag. We report results using 1-year and 5-year lags in columns 2 and 3, respectively. The results are only marginally affected. The estimated coefficients are not statistically different across specifications. Column 4 provides an alternative approach to the choice of the lag by considering total exports in the five years prior to the implementation of the investment, $\ln(\sum_{t-5}^{t-1} X_{fjt})$. We find a positive and significant coefficient, with a slightly larger point estimate compared to the previous cases. We emphasize that only locations to which the firm has continuously exported over the previous five years are included in the sample for this specification. The positive and significant coefficient that we find even after controlling for export experience provides further support for the existence of the securing market mechanism, suggesting that it operates beyond the profitability assessment channel of Conconi et al. (2016).

Table A.6: Export and FDI entry: different lags for exports

	(1)	(2)	(3)	(4)
VARIABLES		FDI_{fjt}^{entry}		
$\ln(X_{fjt-3})$	0.339^{a}			
	(0.023)			
$\ln(X_{fjt-1})$		0.369^{a}		
		(0.026)		
$\ln(X_{fjt-5})$			0.317^{a}	
			(0.024)	
$\ln(\sum_{t-5}^{t-1} X_{fjt})$				0.467^{a}
				(0.038)
Observations	26,307	28,691	23,924	15,923
FEs	ft jt	ft jt	ft jt	ft jt
Cluster	f j	f j	f j	f j
Sample	$X_{fjt-3} > 0$	$X_{fjt-1} > 0$	$X_{fjt-5} > 0$	$X_{fj(t-5,t-1)} > 0$

Notes: PPML estimation. FDI_{fjt}^{entry} is a dummy equal to one if firm f investing in year t chooses country j. $\ln(X_{fjt-3})$ is log of bilateral exports (in thousands \$) in $t-3$. $\ln(X_{fjt-1})$ is log of bilateral exports (in thousands \$) in $t-1$. $\ln(X_{fjt-5})$ is log of bilateral exports (in thousands \$) in $t-5$. $\ln(\sum_{t=t-5}^{t-1} X_{fj})$ is log of total bilateral exports (in thousands \$) over the period $t-5$ to $t-1$. Estimation in Column 4 is conducted over the sample of firm-country couples with positive exports in all the 5 years prior to investment entry, $X_{fj(t-5,t-1)} > 0$. ft, jt are, respectively, firm-year and country-year. Two-way clustered standard errors at the firm f and country j level. "a" p < 0.01, "b" p < 0.05, "c" p < 0.1.

Table A.7 provides the estimation of Equation 5 adding imports as an additional control. We apply Inverse Hyperbolic Sine transformation to imports to deal with zero values. Please note that this transformation is not necessary for exports, as our baseline estimation is conducted on the sample of positive export flows. Results are in line with the estimation reported in Table 3. Interestingly, we denote a positive and significant coefficient also for imports. In Appendix A.4 we examine this result in more detail, providing evidence of a mechanism on the import side similar to that for exports, i.e. investments to *secure the import market*.

Table A.7: Export and FDI entry: controlling for imports

	(1)	(2)	(3)	(4)
VARIABLES		FDI^{entry}_{fjt}		
$\ln(X_{fjt-3})$	0.302^a	0.302^a	0.459^a	0.465^a
	(0.020)	(0.024)	(0.107)	(0.107)
$IHS(M_{fjt-3})$	0.131^a	0.143^a	0.245^a	0.236^a
	(0.015)	(0.019)	(0.050)	(0.049)
Observations	26,307	11,202	836	818
FEs	ft jt	ft jt fR	ft fR jkt	fRt jkt
Cluster	f j	f j	f j	f j

Notes: PPML estimation. FDI^{entry}_{fjt} is a dummy equal to one if firm f investing in year t chooses country j. $\ln(X_{fjt-3})$ is log of bilateral exports (in thousands \$). $IHS(M_{fjt-3})$ is the Inverse Hyperbolic Sine transformation for bilateral imports (in thousands \$) to deal with zero import flows. Given that estimation is conducted on positive exports flows the IHS transformation is not needed for exports. *ft*, *jt*, *fR*, *jkt*, *fRt* are, respectively, firm-year, country-year, firm-WBregion, country-NACE4d-year, firm-WBregion-time fixed effects. Two-way clustered standard errors at the firm f and country j level. "a" $p < 0.01$, "b" $p < 0.05$, "c" $p < 0.1$.

As discussed in the main text (Section 3.1), consistent with our mechanism, the estimation sample of Equation 5 includes only positive export flows. In Table A.8 we address possible selection bias affecting our baseline results by performing estimation that include also as possible investment destinations countries to which the firm was not exporting prior to the investment decision. In column 1 we show that exporting to a foreign country increases the likelihood of investing there by 5.31 times.[24] Column 2 reports the coefficient for the volume of exports; the estimate is in line with that on the selected sample in Table 3. Please note that in this case we apply the Inverse Hyperbolic Sine transformation to exports to deal with zero export flows. Column 3 to 6 consider together the extensive and intensive margins of exports with a different set of fixed effects. Finally, column 7 adds imports as an additional control. Despite a small loss of precision of the estimated coefficient for the extensive margin of exports with more stringent sets of fixed effects, the results are not qualitatively affected.

[24] $\exp(1.669) \approxeq 5.31$

Table A.8: Export and FDI entry: including destinations without exports

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES				FDI_{fjt}^{entry}			
$\mathbb{1}(X_{fjt-3}) > 0$	1.669^a		0.428^a	0.246^c	0.321	0.342	0.428
	(0.119)		(0.118)	(0.128)	(0.279)	(0.286)	(0.284)
$IHS(X_{fjt-3})$		0.304^a	0.258^a	0.269^a	0.318^a	0.317^a	0.274^a
		(0.022)	(0.022)	(0.020)	(0.049)	(0.050)	(0.049)
$IHS(M_{fjt-3})$							0.128^a
							(0.028)
Observations	116,772	116,772	116,772	40,926	3,372	3,247	3,247
FEs	ft jt	ft jt	ft jt	ft jt fR	ft fR jkt	fRt jkt	fRt jkt
Cluster	f j	f j	f j	f j	f j	f j	f j

Notes: PPML estimation. FDI_{fjt}^{entry} is a dummy equal to one if firm f investing in year t chooses country j. $\mathbb{1}(X_{fjt-3}) > 0$ is a dummy equal to one if firm f exports to country j in *t-3*. $IHS(X_{fjt-3})$ is the Inverse Hyperbolic Sine transformation for bilateral exports (in thousands \$). $IHS(M_{fjt-3})$ is the Inverse Hyperbolic Sine transformation for bilateral imports (in thousands \$). *ft*, *jt*, *fR*, *jkt*, *fRt* are, respectively, firm-year, country-year, firm-WBregion, country-NACE4d-year, firm-WBregion-time fixed effects. Two-way clustered standard errors at the firm f and country j level. "a" $p < 0.01$, "b" $p < 0.05$, "c" $p < 0.1$.

A.2.2 Control investments

In the paper, we hypothesize that firms invest abroad to increase control over the foreign country. In the following table, we explicitly consider the type of ownership of the affiliate by splitting our dependent variable according to whether the investment is of control, minority or portfolio type. Column 1 reports the baseline estimation as in Table 3 as a comparison. As shown by columns 2 to 4, the impact of exports is driven by investments different from those of Portfolio. In addition, as also shown in Table A.3, control investment are by far the majority.

Table A.9: Export and FDI entry: control investments

	(1)	(2)	(3)	(4)
VARIABLES	FDI_{fjt}^{entry}	$FDI_{fjt}^{entry,P}$	$FDI_{fjt}^{entry,M}$	$FDI_{fjt}^{entry,C}$
$\ln(X_{fjt-3})$	0.339^a	0.233^b	0.476^a	0.335^a
	(0.023)	(0.106)	(0.059)	(0.025)
Observations	26,307	438	2,295	19,139
FEs	ft jt	ft jt	ft jt	ft jt
Cluster	f j	f j	f j	f j

Notes: PPML estimation. FDI_{fjt}^{entry} is a dummy equal to one if firm f investing in year t chooses country j. $FDI_{fjt}^{entry,P}$ is a dummy considering only Portfolio investments, i.e. ownership below the 10%. $FDI_{fjt}^{entry,M}$ is a dummy considering only Minority investments, i.e. ownership above the 10% and below 50%. $FDI_{fjt}^{entry,C}$ is a dummy considering only Control investments, i.e. ownership above the 50%. $\ln(X_{fjt-3})$ is log of bilateral exports (in thousands \$). *ft* and *jt* are, respectively, firm-year and country-year fixed effects. Two-way clustered standard errors at the firm f and country j level. "a" $p < 0.01$, "b" $p < 0.05$, "c" $p < 0.1$.

A.2.3 Firm independence

A possible concern for our identification strategy relates to the fact that the French parent might be itself part of a multinational group. This may constitute an omitted variable potentially biasing our results. The observed trade may, indeed, be the result of intra-group trade, and/or the entry in a foreign country may be dictated by the decision of the ultimate owner to reorganize the entire ownership network. Although the inclusion of firm-region fixed effects in Table 3 (column 2) may partially address this concern by controlling, for instance, for other affiliates in the region, endogeneity concerns may still arise.

In the following table we address this concern by running our baseline specification on the subsample of French independent firms, i.e. French MNEs, French groups and French firms not included in groups. We define French independent firms using information from an accompanying dataset that reports indication of the ultimate owner, if existing, of all French firms listed in *LiFi*. Two groups of independent firms are identified: i) *Tête du Groupe (TdG)*, firms that are the ultimate owner of their own group; ii) firms that are not included in the core of any group (based on the *LiFi* database algorithm to identify the core of a group, *noyau dur (ND)*). Column 1 reports the baseline estimation as in Table 3 as a comparison. In column 2 we run the same estimation on the subsample of independent firms (*TdG + no ND = indep t*): we find again a positive and significant coefficient. In column 3 we further restrict the sample by retaining only the firms that are independent throughout all the time period we observe, *indep all-t*. This further controls for change in the ownership structure. Despite a consistent reduction of sample size, results are robust and coefficients are in line with baseline estimation.

Table A.10: Export and FDI entry: firm independence

	(1)	(2)	(3)
Dep. Var		FDI^{entry}_{fjt}	
$\ln(X_{fjt-3})$	0.339^a	0.388^a	0.346^a
	(0.023)	(0.052)	(0.063)
Observations	26,307	2,372	827
FEs	ft jt	ft jt	ft jt
Cluster	f j	f j	f j
Sample	all	indep t	indep all t

Notes: PPML estimation. FDI^{entry}_{fjt} is a dummy equal to one if firm f investing in year t chooses country j. $\ln(X_{fjt-3})$ is log of bilateral exports (in thousands $). *indep t* denote independent firms in the year of the location choice. *indep all t* denote independent firms in the entire period under study (2013-2018). *ft* and *jt* are, respectively, firm-year and country-year fixed effects. Two-way clustered standard errors at the firm f and country j level. "a" p < 0.01, "b" p < 0.05, "c" p < 0.1.

A.2.4 Product complexity

In the following tables we provide the same estimation of Table 4 and 5, substituting the measure of product relational specificity by Martin et al. (2020) with the Product Complexity Index (PCI) developed by the Atlas of Economic Complexity (Harvard University). The latter is calculated at the HS4 product level; we assign to HS6 traded product the PCI of the corresponding HS4 heading. Results are consistent with the baseline specification.

Table A.11: Product Complexity Index and FDI entry - I

VARIABLES	(1)	(2) FDI_{fjt}^{entry}	(3)
$\mathbb{1}(X_{fjt-3}^{PCI>p50})$	1.069^a		
	(0.150)		
$\mathbb{1}(X_{fjt-3}^{PCI,p50-75})$		0.850^a	0.584^a
		(0.160)	(0.153)
$\mathbb{1}(X_{fjt-3}^{PCI,p75-100})$		1.312^a	0.742^a
		(0.155)	(0.144)
$\ln(X_{fjt-3})$			0.324^a
			(0.022)
Observations	26,307	26,307	26,307
FEs	ft jt	ft jt	ft jt
Cluster	f j	f j	f j

Notes: PPML estimation. FDI_{fjt}^{entry} is a dummy equal to one if firm f investing in year t chooses country j. $\mathbb{1}(X_{fjt-3}^{PCI>p50})$ is a dummy equal to 1 if the firm exports at least a good whose PCI is above the 50th percentile of the distribution. $\mathbb{1}(X_{fjt-3}^{PCI,p50-75})$ is a dummy equal to 1 if the firm exports at least a good whose PCI is above the 50th percentile and equal to or below 75th percentile of the distribution. $\mathbb{1}(X_{fjt-3}^{PCI,p75-100})$ is a dummy equal to 1 if the firm exports at least a good whose PCI is above the 75th percentile of the distribution. $\ln(X_{fjt-3})$ is log of bilateral exports (in thousands $). *ft* and *jt* are, respectively, firm-year and country-year fixed effects. Two-way clustered standard errors at the firm f and country j level. "a" p < 0.01, "b" p < 0.05, "c" p < 0.1.

Table A.12: Product Complexity Index and FDI entry - II

VARIABLES	(1)	(2)	(3) FDI_{fjt}^{entry}	(4)	(5)	(6)
PCI_{fjt-3}^{mean}	0.084			0.172		
	(0.105)			(0.106)		
PCI_{fjt-3}^{wmean}		0.046			0.090	
		(0.095)			(0.109)	
PCI_{fjt-3}^{max}			0.921^a			0.540^a
			(0.099)			(0.088)
$\ln(X_{fjt-3})$				0.339^a	0.339^a	0.305^a
				(0.023)	(0.023)	(0.022)
Observations	26,307	26,307	26,307	26,307	26,307	26,307
FEs	ft jt	ft jt	ft jt	ft jt	ft jt	ft jt
Cluster	f j	f j	f j	f j	f j	f j

Notes: PPML estimation. FDI_{fjt}^{entry} is a dummy equal to one if firm f investing in year t chooses country j. PCI_{fjt}^{mean} is the mean of PCI across exported products. PCI_{fjt}^{wmean} is the weighted mean of PCI across exported products, where weights equal the value of exports by product. PCI_{fjt}^{max} is the maximum level of PCI across exported products. $\ln(X_{fjt-3})$ is log of bilateral exports (in thousands \$). ft and jt are, respectively, firm-year and country-year fixed effects. Two-way clustered standard errors at the firm f and country j level. "a" p < 0.01, "b" p < 0.05, "c" p < 0.1.

A.3 Instrumental variable

The presence of the lag in the trade variable and the restrictive set of fixed effects are likely to mitigate endogeneity concerns, allowing us to detect an impact of export on the investments decision. To further address endogeneity, we adopt an instrumental variable approach. In doing so, we rely on a shift-share instrument, IV_{fjt}^{X}, where the *shares* are obtained from the lagged share of each product within firm-country bilateral exports and the *shifts* are foreign countries-product-time inward multilateral resistance terms (MRT) estimated from a gravity framework. We use bilateral country level trade at HS6 digits level, as reported in the CEPII-BACI database (Gaulier & Zignago 2010), to estimate a loop over HS6 products of a structural gravity equation (Eq. A.1). Then, we recover the set of inward MRT at the country-product-time level, κ_{jt}^{h}. By excluding France both as an importer and an exporter from the estimation, the set of estimated inward MRT reflects foreign countries' demand capabilities that are exogenous to French firms' characteristics. The estimated MRT can thus be used to build an instrument for exports which is plausibly exogenous to firms' investment location decisions.

$$X_{ijt}^{h} = e^{(\theta_{it}^{h} + \kappa_{jt}^{h} + GRAVITY_{ij})} + \eta_{ijt}^{h} \tag{A.1}$$

where i denotes the exporting country, j the importing country, h the HS6 code and t the year, and $GRAVITY$ controls for bilateral trade frictions such as distance, common language, contiguity and colonial links. The estimation of equation A.1 is conducted using a PPML estimator. Once normalized, the estimated inward MRTs, κ_{jt}^{h} measures the demand by country j of good h in year t.

We define our instrument as

$$IV_{fjt}^{X} = \sum_{h} \kappa_{jt}^{h} * w_{fjht=2007} \tag{A.2}$$

where $w_{fjht=2007}$ is the share of product h in total exports of firm f to country j in year 2007.[25]

Table A.13 provides the results using the above instrument. In column 1 to 3 we perform a reduced-form PPML estimation. Results are in line with Table 3, excepting some loss of precision when using more stringent set of fixed effects (column 3). In column 4 we report an OLS estimation of the baseline specification and, in column 5, the corresponding 2SLS estimate. Results are in line with baseline estimates.

Table A.13: IV approach

	(1)	(2)	(3)	(4)	(5)
VARIABLES			FDI^{entry}_{fjt}		
IV^{X}_{fjt-3}	0.800^{a}	1.083^{a}	0.879		
	(0.208)	(0.204)	(0.673)		
$\ln(X_{fjt-3})$				0.007^{a}	0.019^{a}
				(0.001)	(0.003)
Observations	25,893	11,064	829	48,753	48,087
FEs	ft jt	ft fR jt	ft fR jkt	ft jt	ft jt
Cluster	f j	f j	f j	f j	f j
Model	PPML	PPML	PPML	OLS	2SLS
F-test					111.4
β 1st-stage					2.41^{a}

Notes: FDI^{entry}_{fjt} is a dummy equal to one if firm f investing in year t chooses country j. IV^{X}_{fjt-3} is the instrument for $\ln(X_{fjt-3})$ calculated as Equation A.2. $\ln(X_{fjt-3})$ is the log of bilateral exports (in thousands \$). Estimations in columns 1 to 3 are reduced-form. *ft*, *jt*, *fR* and *jkt* are, respectively, firm-year, country-year, firm-WBregion, country-NACE4d-year fixed effects. Two-way clustered standard errors at the firm f and country j level. "a" $p < 0.01$, "b" $p < 0.05$, "c" $p < 0.1$.

[25] The year has been fixed to a pre-sample period to mitigate the effect of endogenous restructuring of the trade basket.

A.4 Securing the import market

Our theoretical framework in Section 2 and empirical results in Section 4 provide evidence of a mechanism through which investments enable the securing of exports to a foreign market, thus ensuring against the profit loss arising from possible disruption of the trade relationship.

In this section we modify the baseline framework to provide evidence of a similar mechanism at place when considering foreign countries as imports origins.

As in our baseline framework, we consider the case in which the firm's production stays domestic and the new affiliate abroad does not produce output. The latter serves as a direct and trusted control mechanism over the foreign country. In the case of imports from foreign countries, control is exerted over the input market. An affiliate abroad allows control of foreign suppliers, for instance by monitoring their effort in respecting non-contractible characteristics of the inputs supplied, as well as overseeing of the entire business environment, checking the entry of new buyers that could induce competition in the input market.

The decision-making of the firm follows the same rationale as above. When choosing the foreign country, the firm compares the fixed costs of establishing the foreign affiliate with the return from the investment. In this case, the return of investment is the contribution of the foreign country to firm profits as an input supplier.

Consider a firm that produces its final good using domestic labor at wage w_d to assemble a unit bundle of intermediate input, I, that can be sourced domestically or abroad. The difference between domestic and foreign origin input is their price, ρ. Foreign inputs j are used if cheaper than domestic ones:

$$\rho_j = (1 - k_j)\rho_d \qquad 0 < k < 1 \tag{A.3}$$

where $k_j = \frac{c_j}{\tau_{jd}}$ reflects a measure of country j competitiveness as a Ricardian index of comparative advantage, c_j, adjusted for iceberg costs, τ_{jd}.

Firm total costs may be written as follows:

$$C_f = \begin{cases} w_d L_d + \rho_d I & \textit{if I is sourced domestically} \\ w_d L_d + (1 - k_j)\rho_d I & \textit{if I is sourced abroad} \end{cases} \tag{A.4}$$

Eq. A.4 implies that, for each unit of input sourced abroad, the firm experiences a reduction in costs equal to $k_j \rho_d$.[26]

We can write the contribution of a given foreign country j to gross profits as a function of total imports from country j:

$$\Pi^G_{fj} = k_j \rho_d I_j \tag{A.5}$$

Assuming decision-making to follow the same rationale as for the case of exports (see Equation 3) implies similar predictions for the importing case.

[26] We consider the case in which decisions across different markets are independent: the firm cannot replace foreign-origin goods across different countries, but only with domestic varieties that, according to A.3, are more expensive. This is consistent with the short-period horizon in our framework.

Tables A.14, A.15 and A.16 provide the results. Despite some loss of precision for the role of relational specific goods in Table A.15 and A.16, also due to smaller sample size, coefficients are in line with those for exports.

Table A.14: Import and FDI entry

	(1)	(2)	(3)	(4)
VARIABLES		FDI^{entry}_{fjt}		
$\ln(M_{fjt-3})$	0.181^a	0.206^a	0.138^a	0.161^a
	(0.019)	(0.023)	(0.016)	(0.021)
$IHS(X_{fjt-3})$			0.240^a	0.227^a
			(0.018)	(0.021)
Observations	10,590	5,407	10,590	5,407
FEs	ft jt	ft fR jt	ft jt	ft fR jt
Cluster	f j	f j	f j	f j

Notes: PPML estimation. FDI^{entry}_{fjt} is a dummy equal to one if firm f investing in year t chooses country j. $\ln(M_{fjt-3})$ is log of bilateral imports (in thousands \$). $IHS(X_{fjt-3})$ is the Inverse Hyperbolic Sine transformation for bilateral exports (in thousands \$). *ft*, *jt* and *fR* are, respectively, firm-year, country-year and firm-WBregion fixed effects. Two-way clustered standard errors at the firm f and country j level. "a" p < 0.01, "b" p < 0.05, "c" p < 0.1.

Table A.15: Import relational specificity and FDI entry - I

	(1)	(2)	(3)
VARIABLES		FDI^{entry}_{fjt}	
$\mathbb{1}(M^{Spec>p50}_{fjt-3})$	0.429^a		
	(0.133)		
$\mathbb{1}(M^{Spec,p50-75}_{fjt-3})$		0.248^c	0.200
		(0.143)	(0.148)
$\mathbb{1}(M^{Spec,p75-100}_{fjt-3})$		0.540^a	0.242
		(0.140)	(0.152)
$\ln(M_{fjt-3})$			0.176^a
			(0.017)
Observations	10,590	10,590	10,590
FEs	ft jt	ft jt	ft jt
Cluster	f j	f j	f j

Notes: PPML estimation. FDI^{entry}_{fjt} is a dummy equal to one if firm f investing in year t chooses country j. $\mathbb{1}(M^{Spec>p50}_{fjt-3})$ is a dummy equal to 1 if the firm imports at least a good whose relational specificity is above the 50th percentile of the distribution. $\mathbb{1}(M^{Spec,p50-75}_{fjt-3})$ is a dummy equal to 1 if the firm imports at least a good whose relational specificity is above the 50th percentile and equal to or below 75th percentile of the distribution. $\mathbb{1}(M^{Spec,p75-100}_{fjt-3})$ is a dummy equal to 1 if the firm imports at least a good whose relational specificity is above the 75th percentile of the distribution. $\ln(M_{fjt-3})$ is log of bilateral imports (in thousands \$). *ft* and *jt* are, respectively, firm-year and country-year fixed effects. Two-way clustered standard errors at the firm f and country j level. "a" p < 0.01, "b" p < 0.05, "c" p < 0.1.

Table A.16: Import relational specificity and FDI entry - II

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES			FDI^{entry}_{fjt}			
$Spec^{mean}_{fjt-3}$	-0.060			-0.018		
	(0.116)			(0.134)		
$Spec^{wmean}_{fjt-3}$		-0.236^{b}			-0.148	
		(0.095)			(0.102)	
$Spec^{max}_{fjt-3}$			0.598^{a}			0.218
			(0.173)			(0.154)
$\ln(M_{fjt-3})$				0.181^{a}	0.180^{a}	0.175^{a}
				(0.019)	(0.019)	(0.018)
Observations	10,590	10,590	10,590	10,590	10,590	10,590
FEs	ft jt	ft jt	ft jt	ft jt	ft jt	ft jt
Cluster	f j	f j	f j	f j	f j	f j

Notes: PPML estimation. FDI^{entry}_{fjt} is a dummy equal to one if firm f investing in year t chooses country j. $Spec^{mean}_{fjt}$ is the mean of relational specificity across imported products. $Spec^{wmean}_{fjt}$ is the weighted mean of relational specificity across imported products, where weights equal the value of imports by product. $Spec^{max}_{fjt}$ is the maximum level of relational specificity across imported products. $\ln(M_{fjt-3})$ is log of bilateral imports (in thousands \$). ft and jt are, respectively, firm-year and country-year fixed effects. Two-way clustered standard errors at the firm f and country j level. "a" $p < 0.01$, "b" $p < 0.05$, "c" $p < 0.1$.